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An Acute Syphilitic Affection of the Ear

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AN ACUTE SYPHILITIC AFFECTION OF THE EAR.[1]

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VERY little attention is paid to the syphilitic affections by any of the recent text-books on the ear, and such space as is devoted to the subject is given to the consideration of the skin lesions or the chronic bone lesions about the stapes or in the labyrinth. The general consensus of opinion seems to be that aural manifestations of this disease are rare, and relatively unimportant. This is, I am sure, a mistaken idea, for I readily found some 15 or 20 cases of this particular lesion, of which I am to speak, in about a year after my attention had been specially directed to the search for them. I do not doubt that every clinic contains many unrecognized cases of various phases of otitic syphilis, some of which endanger the other patients in the clinic.

Concerning the particular lesion of which I am to speak to-night, almost nothing is to be found in aural literature, although the significance of the group of symptoms has been recognized for a long time. I may best define these symptoms by giving one or two histories:

CASE I. A man forty years old, with no previous ear trouble, had syphilis about six months ago. He

[1] Read before the Boston Society for Medical Improvement, November 2, 1896.

had never received any treatment, but has had no symptoms since the disappearance of the skin eruption some three months ago. Three weeks before I saw him, he began to have ringing in the ears, which gradually increased in severity until it became very loud; at the same time a deafness began, which in the course of a week became practically complete. At the same time he had a slight vertigo so that the gait was somewhat unsteady in walking. When I first saw him, three weeks after this, his deafness was practically complete, the hearing tests being

Watch: right, $\frac{c}{60}$=0; left, $\frac{c}{60}$=0.
Voice: right, $\frac{1}{5}\frac{}{5}$; left, $\frac{1}{4}\frac{}{5}$.
Tuning-fork C, 512 v. s.: right, $\frac{8''}{0}\,\frac{a.c.}{b.c.}$; left, $\frac{12''}{0}\,\frac{a.c.}{b.c.}$
Upper Limit: right, Galton 2.9; left, Galton 2.6.
Lower Limit, 64 v. s.: heard with both ears.

The tinnitus and vertigo, were at this time very marked.

Case II presents some points of difference. G. E., twenty-eight years old, had syphilis three years ago, and received treatment for a year, since which time, having no further symptoms of the disease, he took no medicine. Five weeks before I saw him he had a severe cold in the head, which went away very suddenly, leaving him totally deaf. The onset of this deafness was exceedingly acute; he went to bed with his ear feeling "stuffy," and woke up absolutely deaf, and with severe vertigo and vomiting. In the next five weeks he took treatment with his family physician, without improvement. He remained very deaf; his vertigo was so severe that, to use his own expression, he was afraid to walk alone for fear of being arrested for drunkenness. He had at all times a sound like a sea-shell in his ears, and at times a clear ringing sound. At the time I saw him he staggered perceptibly to the

left in walking; but a careful examination failed to reveal any other trouble than that of the auditory nerve. Both membranæ tympani were clear and transparent and in normal position. The hearing test was

Watch: right, $\frac{c}{6}0$=0; left, $\frac{c}{6}0$=0.
Voice: right, $\frac{2}{25}$; left, 0.
Tuning-fork C: right, $\frac{15}{0}$ a. c. b. c. 65″; left, $\frac{0}{0}$ a. c. b. c. 65″.
Weber Test: fork heard in right ear.

Unfortunately no test of the upper and lower tone limits was made in this case.

Case III. A man thirty-five years old, had syphilis six months ago, and had been under careful treatment from the time of the initial lesion. The skin eruption and other secondary lesions had been very slight indeed. Ten days before I saw him, he had begun to notice difficulty in hearing, which rapidly increased, accompanied by violent vertigo and tinnitus, until in the course of two or three days he became so deaf that he was unable to carry on his business. At this time he was taking iodide and mercury in full doses. On examination, no trouble with any other part of the nervous system was discovered, the drum membrane was clear, transparent, and in normal position. His chief complaint was of dizziness and a very loud tinnitis. The hearing test was

Watch: right, $\frac{c}{6}0$=0; left, $\frac{c}{6}0$=0.
Voice: right, $\frac{1}{5}$; left, $\frac{1}{5}$.
Tuning-fork A: right, $\frac{10}{0}$ a. c. b. c. 75″; left, $\frac{10}{0}$ a. c. b. c. 75″.
Galton: upper register lost in both ears; lower register 64 v. s., not heard in either ear.

As will be very easily seen, these three cases present a marked similarity of symptoms — very sudden and severe deafness, more or less severe vertigo, and violent tinnitus, occurring in persons previously free from ear trouble. This complex of symptoms should

always suggest syphilis, and will be found to be caused by it in the large majority of cases where there has been no previous ear trouble. We do meet the same group in the rare cases of labyrinthine hemorrhage or tumor, and also in the rare sudden fixations of the stapes which occur in the deep middle-ear thickenings. In these cases the history and hearing tests, or in case these fail, the treatment will immediately show us the probable cause.

In this differentiation the test of hearing is especially important. It will be noticed that in all the cases I have quoted, the watch and voice deafness was very marked, and a tuning-fork of the middle register was wholly lost to bone conduction, but remained fair for air conduction. At the same time the upper register as shown on the Galton whistle was more or less diminished, and the lower limit usually remained unaltered. This hearing test is in my experience quite characteristic. On the other hand, a stapes fixation from extension would show a very marked loss of low tones, often as high as 2,000 vibrations a second where the process had extended into the labyrinth sufficiently to involve the upper register. Such a loss of low tones I have never seen in an acute syphilitic process. The acute labyrinthine processes, on the other hand, show a marked loss of high tones in all cases, and in the more severe ones a total deafness by both air and bone conduction over a greater part of the register.

The pathological process in these cases is not well understood, as an opportunity for post-mortem investigation is never obtained in the acute form of the disease. In the old syphilitic process we find most commonly periosteal changes about the base-plate of the stapes and that portion of the cochlea in its vicinity, and degenerative tissue changes in the nerve-cells and blood-vessels of the cochlea.

The clinical evidence would seem to be in favor of an effusion into the labyrinth as a cause of the particular group of symptoms we are considering.

The early tertiary or late secondary period seems to be the favorite time for this particular lesion, although some cases are reported as early as the fourteenth day of the disease. In all of the cases I have observed, the first symptoms of the involvement of the auditory apparatus have been from three months to five years after the original infection. In some twenty cases I have never seen one earlier than three months. One case occurred in the course of hereditary syphilis in a child of eight years. Some points in the differential diagnosis are of importance. The majority of the cases that I have seen have had a diagnosis of cranial trouble made, and had consequently been given a bad prognosis; this mistake is not an unnatural one from the fact that, in the mind of the average practitioner, even a high grade of deafness is considered relatively unimportant, and the chief attention is given to the symptom, vertigo. This vertigo and its accompanying nausea is frequently quite severe. In extreme cases, the patient may be confined to his bed for several days, unable to raise his head without vertigo and vomiting; occasionally he will say that he sees double, and even in the less severe forms the patient will stagger perceptibly in walking. There should, however, be no difficulty in establishing the absence of any other cranial lesion, as a careful examination will fail to reveal the implication of any other nerve than the auditory.

As will be observed in two of the three cases quoted, this complication of syphilis frequently comes on in cases that have received careful and thorough treatment; this was especially so in Case III, who had very thorough treatment under a member of this

Society from the very start of the disease. Under these circumstances the administration of mercury and iodide to the maximum limit will often be of no avail. Here the subcutaneous administration of pilocarpine up to its full physiological limit will be of great service.

The improvement in hearing and the diminution of vertigo following the administration of this drug is in acute cases little short of marvellous; for example, Case II, when I first saw him, was so dizzy that he was unable to walk to and from his place of business, and his hearing was reduced to zero in one ear, and whispered voice at two twenty-fifths in the other. One injection of pilocarpine (one-sixth of a grain) raised his hearing to ten twenty-fifths, three injections to normal; and at the end of a week, having been given in addition iodide of potassium, he was free enough from vertigo to return to work, which he had not been able to do before for three weeks.

Case III had, in addition to his regular treatment, five or six injections of pilocarpine, which raised his hearing for both tuning-fork and voice to normal, where it now, after the lapse of two years, still remains. The pilocarpine in Case II was continued over the space of two weeks, when his hearing in one ear was normal; the other ear did not respond to treatment. This was about four years ago; he continued treatment with iodide of potassium for about six months, and his hearing at that time was still good in the better ear. Since that time he has neglected treatment both for his ear and for his systemic syphilis; and in a letter received from him some months ago I was informed that he was practically totally deaf and much troubled with vertigo.

From a fairly large experience in the administration of pilocarpine in these cases I think we may safely con-

clude that the drug is an absolute specific in all acute syphilitic cases presenting this complex of symptoms; that where the deafness and vertigo have persisted for over a month, the prognosis is very doubtful; that it is of great value in cases where iodide and mercury are of little avail; but that it has no permanent value, and should be used in conjunction with other syphilitic treatment. In neglected cases where the pilocarpine may have failed to improve the hearing to any appreciable extent, it will almost never fail to relieve the accompanying vertigo.

There is nothing especially new about the pilocarpine treatment; but it certainly is a very valuable drug, and its use has been curiously neglected. I have for two or three years used it as a routine treatment in all cases of progressive deafness and obstinate vertigo and tinnitus which I have seen in my service at the Eye and Ear Infirmary; but although very favorable reports by eminent aural authorities on the use of this drug in other than syphilitic cases have been published from time to time, I have, in over a hundred administrations of the drug, never seen a favorable result follow its use in a non-syphilitic case.

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